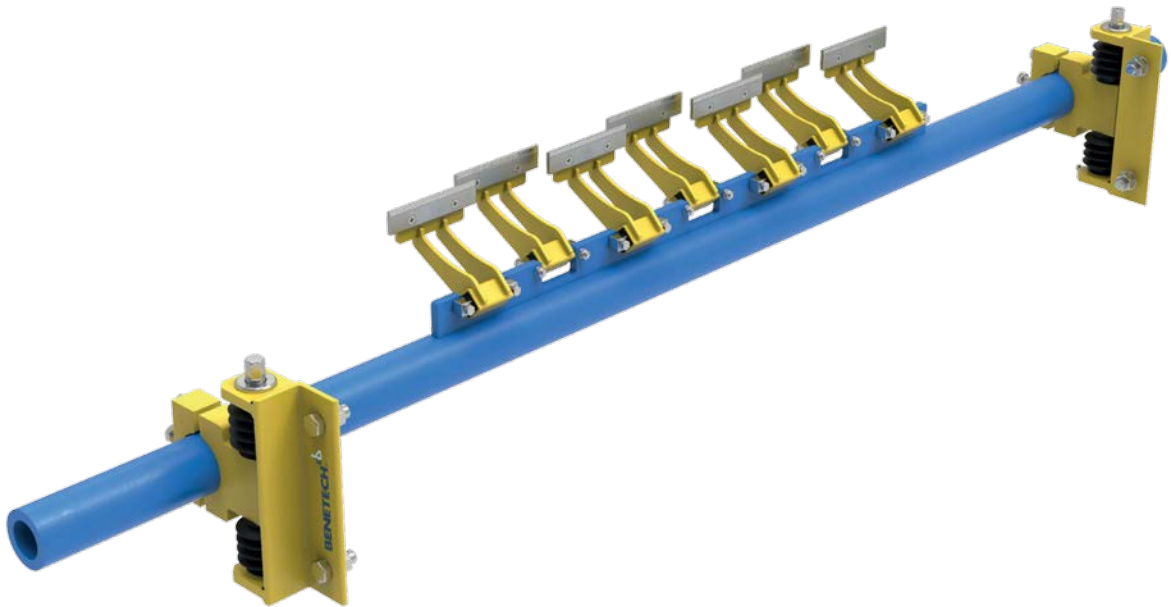


BENETECH. **MaxClean™**

BXS5 **Performance Class Secondary Belt** **Cleaner System**

Owner Operator **&** **Manual**



! IMPORTANT !

BENETECH, INC. HEREBY DISCLAIMS ANY LIABILITY FOR, BUT NOT LIMITED TO:

- IMPROPER INSTALLATION OF EQUIPMENT
- IMPROPER SIZING OF EQUIPMENT
- DAMAGE DUE TO CONTAMINATION OF MATERIAL
- USER'S FAILURE TO INSPECT EQUIPMENT
- USER'S FAILURE TO MAINTAIN EQUIPMENT
- USER'S FAILURE TO TAKE REASONABLE CARE OF THE EQUIPMENT
- INJURIES OR DAMAGE RESULTING FROM USE OR APPLICATION OF THIS PRODUCT CONTRARY TO INSTRUCTIONS AND SPECIFICATIONS CONTAINED HEREIN.

BENETECH, INC.'S LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF EQUIPMENT SHOWN TO BE DEFECTIVE.

! SAFETY !

Review and understand all safety rules given herein along with local and Governmental standards and regulations. Know and understand the American National Standards Institute (ANSI) z244.1-1982 lockout/tagout procedures, the American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements and the Occupational Safety and Health Administration (OSHA) Federal Register, Part IV, 29 CFR Part 1910, Control of Hazardous Energy Source (Lockout/Tagout); Final Rule.

Also observe all local and Governmental regulations concerning entry into confined spaces, welding, cutting, grinding, wash-down procedures and all Personal Protective Equipment (PPE) regulations.

The following notations are used throughout in this manual.

! DANGER !

Danger: Denotes immediate hazards that will result in severe personal injury or death.

! WARNING !

Warning: Denotes hazards or unsafe practices that could result in personal injury.

! CAUTION !

Caution: Denotes hazards or unsafe practices that could result in product or property damages.

! IMPORTANT !

Important: Denotes instructions that must be followed for proper installation and/or operation of equipment.

! NOTE !

Note: Denotes general items to assist the reader/ installer/ operator.

Please pay close attention to all of these items and warnings.
They have been included here for your safety and for ease of installation.

Table of Contents

Introduction	4
References	4
Installations Without Chute work	5
Belt Cleaner Inspection Access	5
Safety	5-6
Before Installing Belt Cleaner	7
Installing Belt Cleaner	8-12
Belt Cleaner Operation and Maintenance	13-14
Troubleshooting/Installation Checklist	15
Part Numbers	16

Introduction

Typical Belt Cleaning systems include a primary belt cleaner and one or more secondary belt cleaners. The Primary belt cleaner is installed on the face of the drive pulley and is used to remove the majority of the carryback sticking to the conveyor and return the fugitive material back into the product flow.

This “carry-back” is then deposited in piles under the conveyor, sticks to return idlers, sticks gravity take-up pulleys, sticks to bend pulleys and sticks to or covers anything else it comes in contact with.

Problems arising from this carry-back can range from mis-tracking of belts due to uneven build up of material on idlers, to premature belt wear from the belt being dragged through material piles and into conveyor structural members, and belt fires from the belt being dragged through material piles and even complete catastrophic belt failure from pulleys seizing.

Secondary belt cleaners can be installed anywhere on the return side of the conveyor, but are typically installed immediate after the belt leaves contact with the drive pulley. This keeps the material removed by the secondary belt cleaner in the dribble chute area of the transfer point chute work where it can still be reintroduced back into the main flow of material.

Secondary cleaners should be installed where the conveyor belt is under reasonably high tension, providing a level/taut surface for the secondary belt cleaner to be in contact with.

In some cases the materials used in the construction of the cleaners may not be compatible with the material being handled and contamination can occur if the product is damaged during use of even when it operates as intended. If the material handling process could be contaminated in any way through the use of this product it is the user's responsibility to take the necessary steps to prevent contamination.

Please feel free to consult BENETECH, INC. if you suspect there may be incompatibility problems or questions about product application and use, we can provide specific recommendations for your particular problem.

References

The following documents are referenced in this manual:

- American National Standards Institute (ANSI) z244.1-1982, American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements, American National Standards Institute Inc., 1430 Broadway, New York, NY 10018.
- Federal Register, Volume 54, Number 169, Part IV, 29 CFR Part 1910, Control of Hazardous Energy Source (Lockout/Tagout); Final Rule, Department of Labor, Occupational Safety and Health Administration (OSHA), 32nd Floor, Room 3244, 230 South Dearborn Street, Chicago, IL 60604.

Installations without Chute work

These procedures were written for equipment that is being installed on enclosed head-pulley chutework. If the head-pulley is open (not enclosed) the equipment should be installed so that the critical dimensions are followed for proper installation.

Belt Cleaner Inspection Access

If the belt cleaner is installed on enclosed pulley chute work, an Inspection Door must be installed to allow for inspecting the equipment during operation. If the chute work does not already have access doors that allow for installing, servicing and maintaining the equipment an adequate sized door should be used.

Inspection doors are available from BENETECH, INC. or a representative. Contact BENETECH, INC. for a list of Benetech Inspection Doors and part numbers. **Unless specifically ordered, inspection doors are NOT included with belt cleaner.**

Belt Cleaner Safety

All safety rules defined in this document and all owner/employer as well as State and Federal safety rules must be strictly adhered to when working on/with this, or any, belt cleaner.

! DANGER !

Do not touch or go near the conveyor belt or conveyor accessories when the belt is running. Your body or clothing can get caught and you can be pulled into the conveyor, resulting in severe injury or death.



! DANGER !

Before installing, servicing, or adjusting the belt cleaner, turn off AND lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

! DANGER !

If this equipment is to be installed in an enclosed area, observe all confined space entry regulations and test the atmosphere for gas levels and dust content levels before using a cutting torch, welding equipment or electric hand tools. Using a torch, welding, grinding or drilling in an area with gas or dust may cause an explosion and/or fire resulting in serious injury or death.

! WARNING !

Before using a cutting torch, welders, or grinding equipment, cover the conveyor belt with a fire retardant/resistant cover. Make sure a water source/fire hose is readily available AND OPERATIONAL. Failure to do so can allow the belt to catch fire.

! WARNING !

Belt cleaners are heavy and require two people to lift. Attempting to lift the belt cleaner without assistance could result in injuries or damage to the equipment.



! WARNING !

Remove all tools, parts, trash, and foreign objects from the installation area and conveyor belt before turning on the conveyor. Failure to do so can result in serious injury to personnel or damage the belt and conveyor.

! NOTE !

All Dimensions in this manual are inches (mm)

Before Installing Belt Cleaner

1. Inspect ALL shipping containers for damage and correct number of items (skids, pallets, cartons, boxes, etc.) being delivered. Report damage and/or shortages to delivery service immediately and fill out delivery service's claim form. Keep ALL damaged goods for examination. Benetech Inc is NOT responsible for damage occurring during transit.
2. All Benetech Inc. belt cleaners are shipped from our facilities fully assembled. Care should be taken while disassembling the units to ensure no parts are lost or damaged as the equipment is moved to its desired location. Dispose of shipping containers in approved manner.
3. If any items are missing, IMMEDIATELY contact BENETECH, INC. or an authorized representative.
4. Gather tools. Minimum tools required for installation are:
 - Tape measure/ String
 - Torch/Hole Saw
 - Level/Straight Edge
 - Angle Finder
 - Welder/Drill
 - Open/Box End Wrenches
 - Socket Set
 - Marker/Soapstone (Welders chalk)
5. Turn off and lock out/tag out energy source according to ANSI standards (see "References") and local plant regulations.

! WARNING !

Before installing equipment, turn off AND lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.



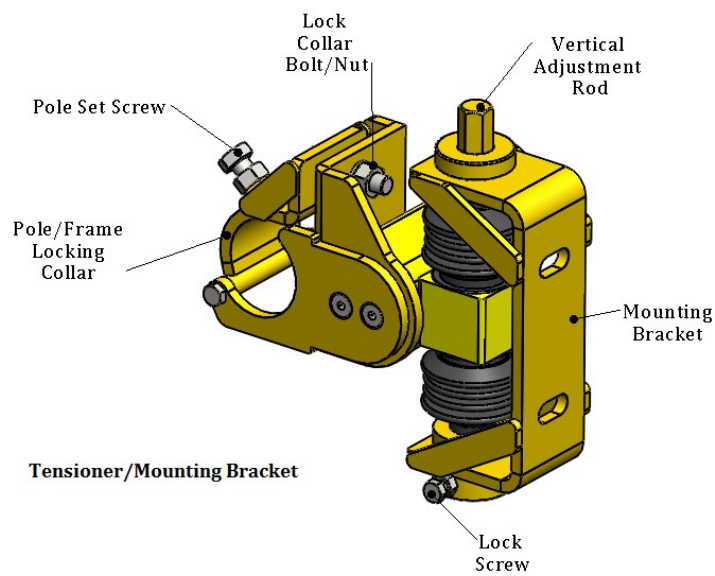
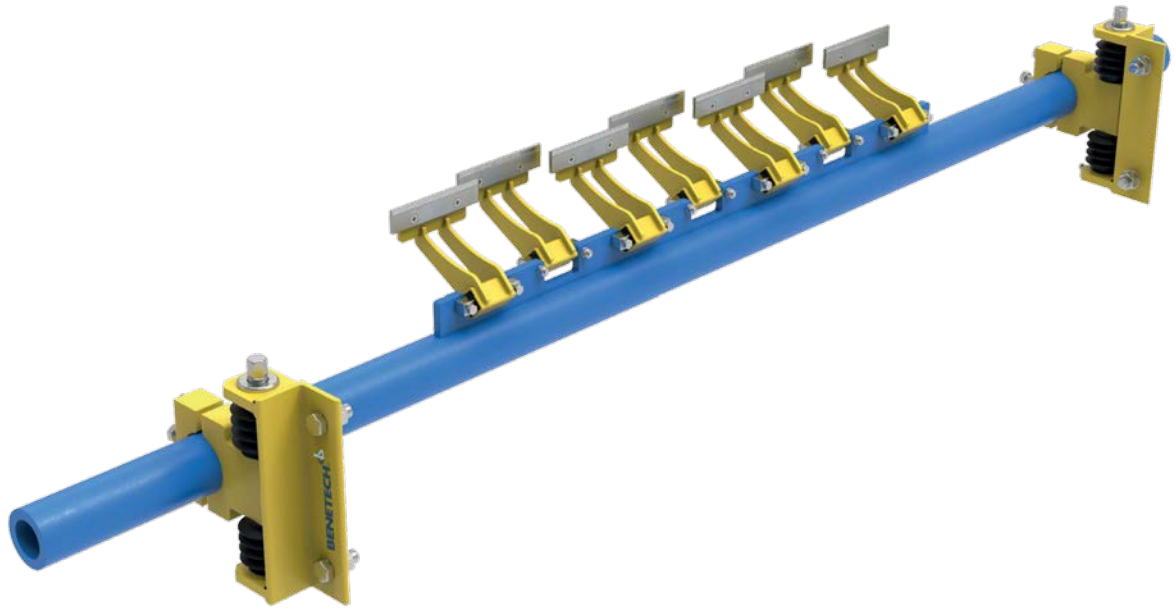
6. If using a cutting torch or welding, test atmosphere for gas level or dust content. Cover conveyor belt with fire retardant cover. Verify locations of fire extinguishers and operational water hoses prior to begin cutting/welding operations.

! WARNING !

If equipment will be installed in an enclosed area, the atmosphere in the structure/area must be tested for gas levels and dust content levels before using a cutting torch, welding equipment, grinding equipment or electric powered tools. Using a cutting torch, welding, drilling or grinding in an area with gas or dust may cause an explosion.

Locating and Installing Belt Cleaner

Tensioner and Mounting bracket, Detail A



DETAIL A

! IMPORTANT !

Read entire section before beginning work.

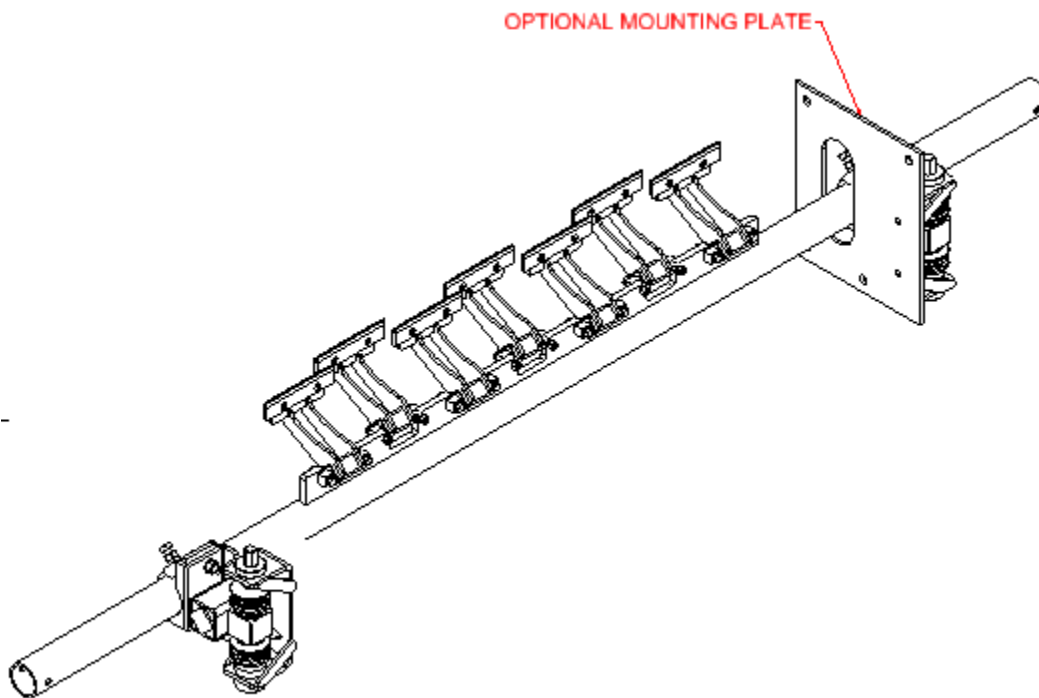
To install the belt cleaner, follow the steps detailed in this section.

1. Locate position of mounting bracket and prepare cutouts for access and inspection. The cutouts and mounting brackets should be installed parallel to the belt line.

the BXS5 Cleaner can be installed in two ways.

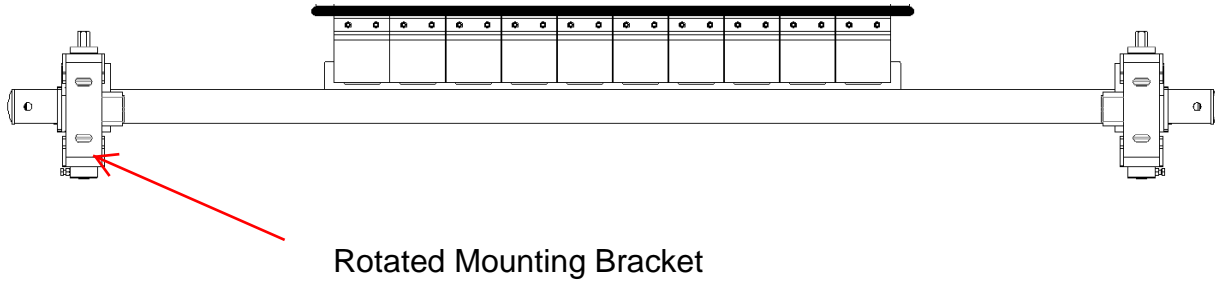
a) the mounting brackets can be installed on a section of angle bracket attached to the side of the chute wall (not supplied, 3" x 3" x 10" minimum recommended but it can be larger and longer). This is an easier method if the cleaner might need to be adjusted vertically in the future or if maximum flexibility is desired (the angle bracket can be slotted or use oversized holes to help install and or position the cleaner) or if modification to the chute walls is undesirable or impractical.

b) the mount bracket can be rotated 90 degrees and mounted directly to the chute wall (usually done because space is limited)



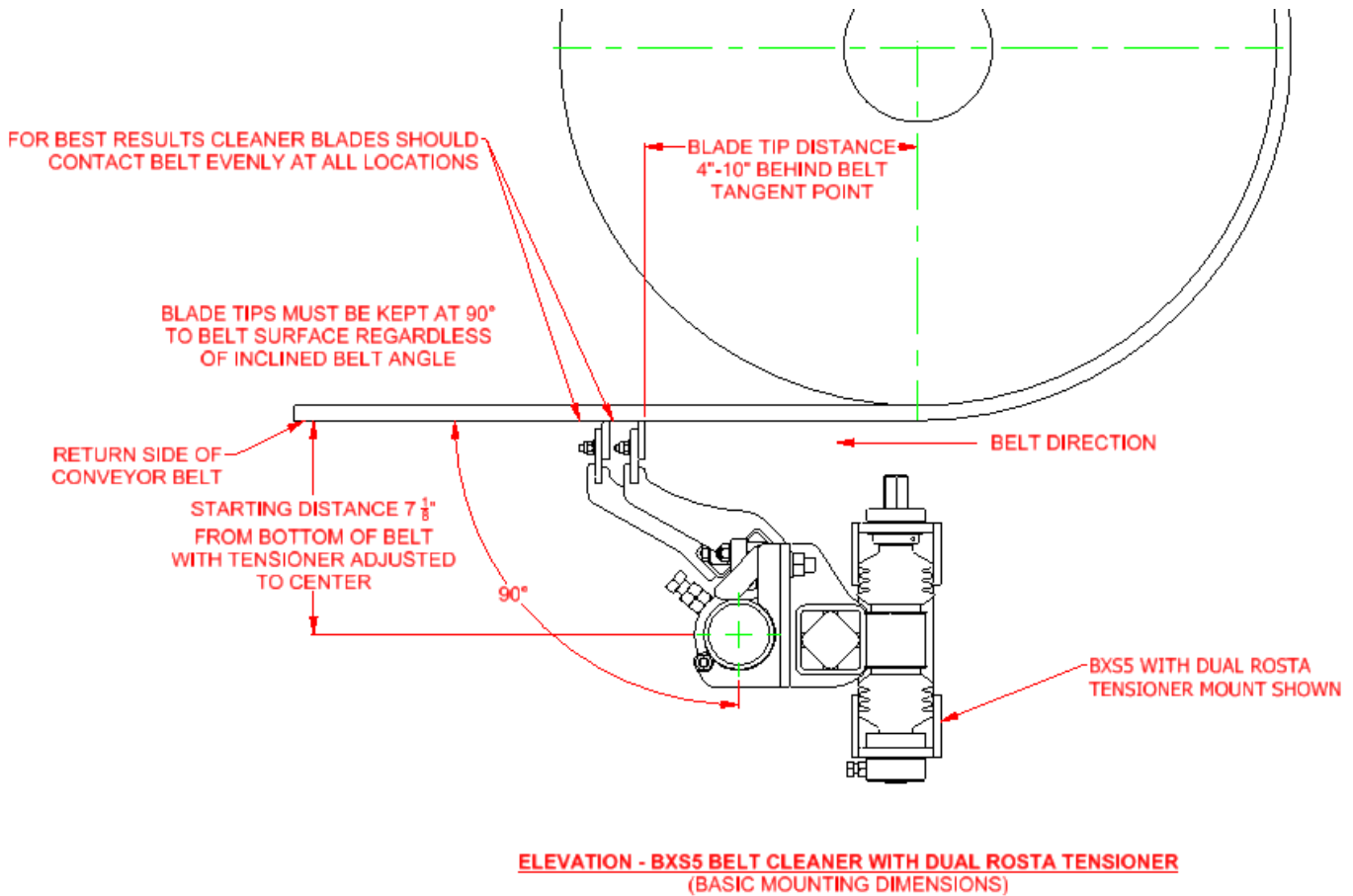
ISO VIEW BXS5 BELT CLEANER WITH DUAL ROSTA TENSIONERS

Mounting Option 1



Mounting Option 2

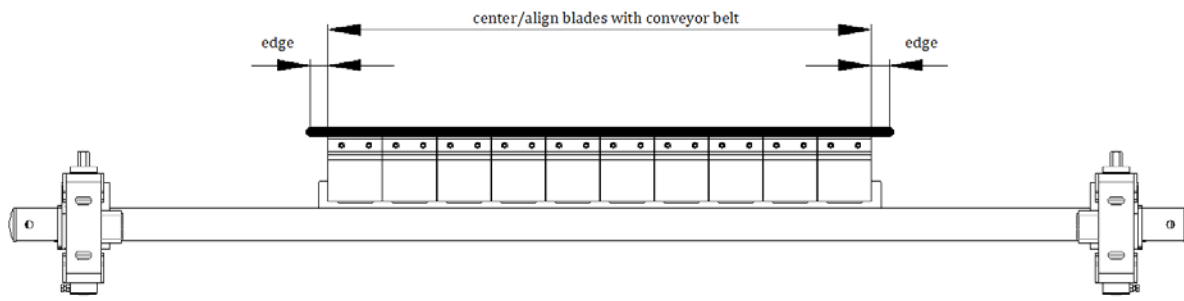
The BXS5 secondary can be mounted at any location along the return side of the conveyor belt, however we recommend that the minimum distance should be 3"-4" from the tangent point on the return side of the belt. The blade tips should not be installed such that the blade is directly under drive pulley. The location of the recommended installation position is shown in Detail B.



DETAIL B

2. Bolt tensioner/mount brackets to near and far side of chute walls or to angle brackets welded to the chute walls.
3. Slide pole/frame and blade assembly into chute wall holes and through the locking collars in each of the tensioner/mounting brackets.

a) Make sure blades/cleaner are centered on the conveyor belt by measuring the distance between the outermost blade and the end of the conveyor on both sides. Adjust the position of the blades accordingly so the cleaner is centered on the belt as shown below in Detail C.



DETAIL C

Tighten locking collar nuts/bolts with the scraper blades aligned perpendicular to the belt surface (the angle between the face of the blades and the belt should be 90 degrees).

4. Raise the cleaner up by turning the vertical tensioner rods on each tensioner/mounting bracket, watch the pole/frame locking collar to ensure you are turning the proper direction. Make sure the lock screw on the base of both tensioner/mount brackets is disengaged and the vertical adjustment rod can be turned.

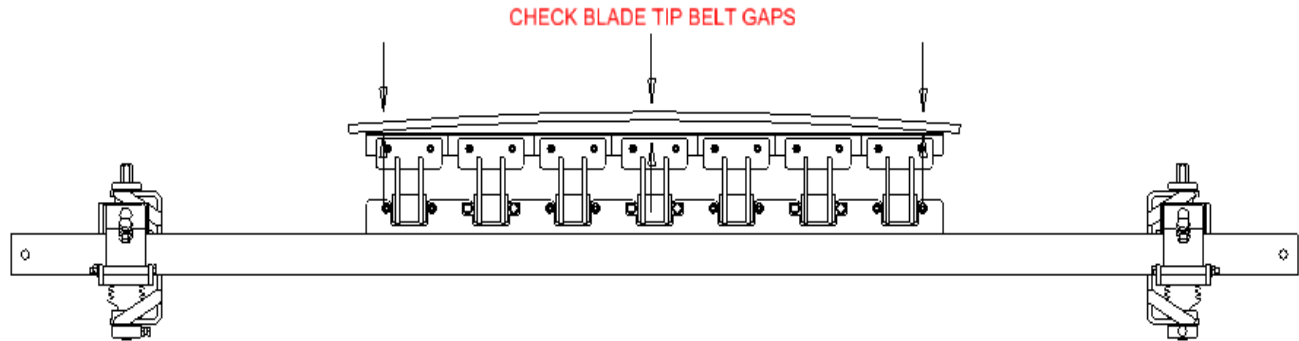
- a) Continue to alternately adjust each side by turning the vertical adjustment rod until the tips of the scraper blades contact the belt.
- b) Ensure the blade tips are contacting the belt correctly by making sure the cleaner is level and the pole is parallel to the belt surface (using a tape measure, measure from the belt to the blades at each end and in the center to ensure the cleaner is level, or use a leveling device attached to the pole/frame).
- c) When the outer blades contact the belt check for gaps between the center blades and the surface of the conveyor.
 - c1) if there are gaps the belt may not be flat (the belt may be cupped). If the belt is cupped the outer blades may contact the belt while the inner blades do not.
 - c2) if this is the case and there is more than a 1/4" gap between the center blades and the belt, lower the cleaner by turning the vertical adjustment rods. Remove one blade from each side of the cleaner and repeat step 4 See Detail D.

! NOTE !

If the belt is severely cupped more than one blade on each end may have to be removed.

! WARNING !

It is important that the blades touch the belt evenly to avoid high pressure regions and potential damage to the conveyor belt. .



DETAIL D

5. Apply two additional full turns of the vertical adjustment screw to tension the blades against the belt surface.
6. Lock the vertical adjustment screws in place by tightening the lock screws on the base of each tensioning/mount bracket.
7. Ensure the scraper blades are perpendicular to the surface of the belt, or rotated backwards slightly. Once the unit has been in operation recheck their orientation to prevent belt damage.

! WARNING !

Excessive tensioning of the belt cleaner can create premature wear of cleaner blades, damage to belt cover and excessive heat.

! DANGER !

Excessive heat created by excessive friction due to cleaners being improperly tensioned can create situations where fire and or explosions can occur

! WARNING !

Failure to remove tools from installation area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.

! WARNING !

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.

Belt Cleaner Operation and Maintenance



- 1) Once installation is complete turn on conveyor belt for 1/2 hour, then turn off. Tighten all mounting nuts, bolts, etc. Check for belt condition and proper tensioner settings. Readjust if necessary.

! DANGER !

Before installing, servicing, or adjusting the belt cleaner/tensioner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.



- 2) Periodic inspection and maintenance **MUST** be performed on a regular basis to ensure the equipment is functioning properly.
 - a. Inspect belt cleaner for proper wear pattern. A small amount of "run-in" wear is normal. This will stop once blades wear to conveyor belt contour. The blade should wear evenly during operation - if it doesn't contact Benetech Inc.
 - b. If excess or uneven wear patterns appear, material builds up badly on blades or frame, or some other problem exists, consult a specialist or contact Benetech Inc for support.
 - c. During inspection remove any material build-up from belt cleaner.
 - d. Make sure all fasteners are tight on tensioners and mounting blocks. Tighten if necessary.
 - e. Check location of cleaner and readjust if necessary. Ensure all blades are operating correctly and not seized or frozen.
 - f. Check blades for excessive wear. All Benetech Inc. blades come with a visible wear lines or patterns on the back of the blades indicating when scraper blades should be replaced. Replace blades when necessary.

- g. Remove equipment from service if there is any indication it is not functioning properly. Call BENETECH, INC. or a representative for assistance.

! NOTE !

Maintenance inspection should be performed no less than weekly. Some applications may require more frequent maintenance inspections.

! DANGER !

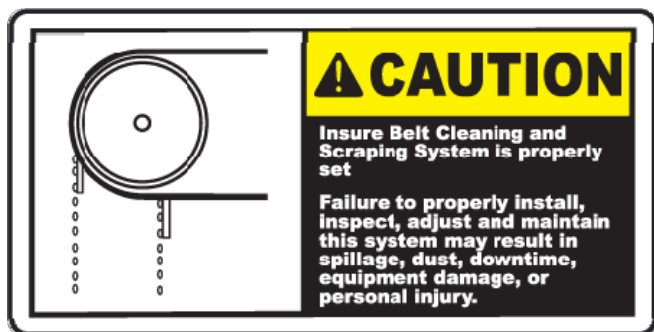
Before installing, servicing, or adjusting the belt cleaner/ tensioner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

! WARNING !

Failure to remove tools from installation area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.

! WARNING !

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.



Troubleshooting

! NOTE !

Conveyor equipment is subject to a wide variety of bulk materials characteristics and performs under extreme operating conditions. It is not possible to predict all circumstances that may require troubleshooting. Contact BENETECH, INC. or a representative if you are experiencing problems other than those listed in the “Troubleshooting” section below. **Do not return the equipment to operation until the problem has been identified and corrected.**

Symptom Corrective Action

Insufficient cleaning and excessive carry back.

Tension of cleaner on belt is set too low. Increase tension to recommended settings or higher if necessary as bulk material conditions may have changed (monitor closely and return to original/recommended settings when possible).

Blades are worn.

Blades are designed to wear during operation. Clear indicator lines or blade pattern indicate when blades are to be removed from service and replaced.

Noise or vibration.

Tension is set too high or un-even between the two tensioners. Correct or equalize tension on both tensioners/mount brackets as necessary by adjusting the vertical position of the cleaner frame.

If this does not correct the problem, blade type or urethane type may not match application. Cleaner may also be incorrectly mounted or other damage to the cleaning system may have occurred. Contact Benetech, Inc. or a representative.

High blade wear rate requiring frequent blade replacement or change outs.

Cleaner tension on belt is set too high. Reduce tensioner setting. If problem persists contact Benetech Inc. or a representative.

Unusual wear or damage to blades.

Check belt splice(s) and repair as necessary. Observe belt operation and check for irregularities. If the cleaning system is damaged replace it. If blades are worn out replace them. If blades are not worn, check mainframe location.

Blade or System Corrosion/Chemical Degradation.

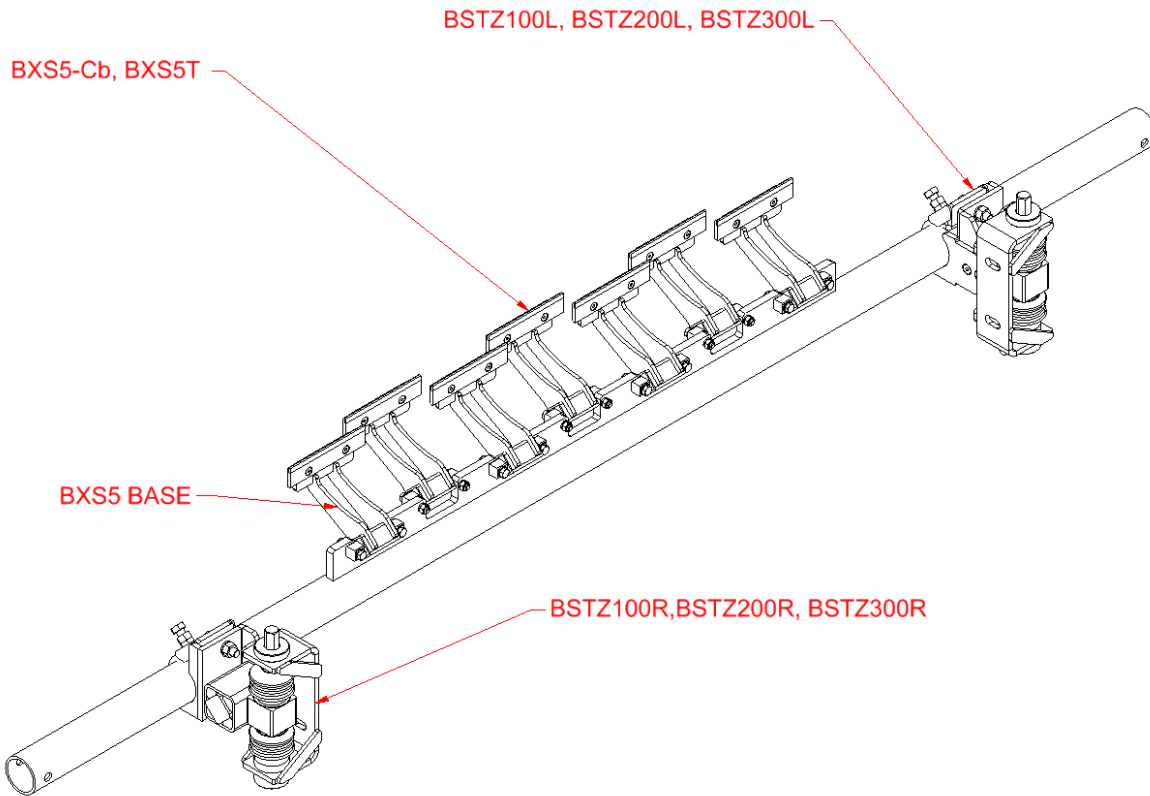
Blade urethane may not match application. Contact BENETECH, INC. or a representative.

Other problems.

Contact BENETECH, INC. or a representative.

Part Numbers

This section provides product names and corresponding part numbers for the Benetech BXS5 Production Class Secondary Belt Cleaner System. For a more detailed parts list please contact Benetech Inc.



PART NUMBER	DESCRIPTION
BXS5-C	CERAMIC UNI-DIRECTIONAL BLADE
BXS5-T	TUNGSTEN CARBIDE UNI-DIRECTIONAL BLADE
BXS5-F	BASE
BSTZ100L	LEFT HAND SIDE TENSIONER / MOUNTING BRACKET; BELT WIDTH 0"-36"
BSTZ100R	RIGHT HAND SIDE TENSIONER / MOUNTING BRACKET; BELT WIDTH 0"-36"
BSTZ200L	LEFT HAND SIDE TENSIONER / MOUNTING BRACKET; BELT WIDTH 42"-48"
BSTZ200R	RIGHT HAND SIDE TENSIONER / MOUNTING BRACKET; BELT WIDTH 42"-48"
BSTZ300L	LEFT HAND SIDE TENSIONER / MOUNTING BRACKET; BELT WIDTH 54"-84"
BSTZ300R	RIGHT HAND SIDE TENSIONER / MOUNTING BRACKET; BELT WIDTH 54"-84"

Benetech, Inc
2245 Sequoia Drive
Suite 300
Aurora, IL 60506

P: 630-844-1300
F: 630-844-8690
www.benetechusa.com